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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/571,883	03/13/2006	Reinhold Klipper	CH8413/LcA 36,760	4607

7590 03/16/2007  
Jennifer R Seng  
Patent Department  
LANXESS CORPORATION  
111 RIDC West Park Drive  
Pittsburgh, PA 15275-1112

EXAMINER
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BERNSHTEYN, MICHAEL

ART UNIT	PAPER NUMBER
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1713

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/16/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/571,883

Applicant(s)

KLIPPER ET AL.

Examiner

Michael Bernshteyn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/20/2006</u>  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. This Office Action follows a response filed on January 5, 2007. Claims 1-7 have been amended; claims 9-17 have been added; no claims have been cancelled.
2. In view of the amendment(s) the rejection of claims 1 and 2 under 35 U.S.C. 102(b) as being anticipated by Karlou-Eyrisch et al. (U.S. Patent Application Publication 2002/0106659) and the rejection of claims 1-7 under 35 U.S.C. 102(b) as being anticipated by Hosoda et al. (JP 09-225298) have been withdrawn.
3. In view of the abandonment of the application No. 11/299,098, a provisional double patenting rejection has been withdrawn.
4. Claims 1-17 are pending.

### *Claim Rejections - 35 USC § 103*

5. The text of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.
6. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being unpatentable over Karlou-Eyrisch et al. (U. S. Patent Application Publication 2002/0106659) in view of Klipper et al. (U. S. Patent 4,952,608).

Karlou-Eyrisch discloses crosslinked bead polymers doped with superparamagnetic iron oxide and a process for the preparation of the bead polymers (abstract).

With regard to the limitations of claims 1-3, Karlou-Eyrisch discloses a process for preparing **crosslinked bead polymers**, which is characterized in that a monomer

mixture of hydrophilic (meth)acrylate, amino (meth)acrylate, crosslinker and, where appropriate, other monomer is polymerized to beads by inverse suspension polymerization, and the latter are then doped with superparamagnetic **iron oxide** by an after-treatment with iron salt solution (page 2, [0024]).

Karlou-Eyrisch discloses that the sample is mixed with the bead polymer according to the invention at a pH of 7 or below, preferably in the range from 2 to 6, particularly preferably in the range from 2 to 3, at room temperature. The bead polymer is removed with the aid of a magnetic field. The complex of nucleic acid and bead polymer obtained in this way can then be purified by washing with suitable buffers (page 3, [0046]). To liberate the bound nucleic acids from the complex, the pH of the complex is then adjusted to pH values above 7, preferably from 8 to 14, particularly preferably in the range 12 to 14 (page 3, [0047]).

The iron salts taken up by the swollen bead polymer are converted into the corresponding iron hydroxides by adding bases. Alkaline solutions of sodium hydroxide, sodium carbonate or ammonia are very suitable. Ammonia is preferred because excess can easily be removed by evaporation. Ammonium salts formed are removed by thorough washing with water (page 3, [0037]).

Karlou-Eyrisch does not disclose that aminomethylated crosslinked polystyrene can be used for producing an iron/oxide/iron oxyhydroxide ion exchanger.

Klipper discloses a process for preparing **anion exchangers** based on **crosslinked, water-insoluble organic polymers** containing aromatic nuclei, in which, in the first step, N-hydroxymethylphthalimide is produced by reaction of phthalimide with

aqueous formaldehyde solution in swelling agents in the presence of bases; if desired, this N-hydroxymethylphthalimide is converted in a 2nd step to the bis(phthalimidomethyl)ether or an ester of N-hydroxymethylphthalimide; said polymers are **aminomethylated** with N-hydroxy-methylphthalimide, bis(phthalimidomethyl) ether or an ester of N-hydroxymethylphthalimide in the presence of Friedel-Craft catalysts and swelling agents and the **aminomethylated polymers** are finally saponified to form the aminomethylated polymers, wherein, in the first reaction step, the base used for producing N-hydroxymethylphthalimide is sodium hydroxide solution and this sodium hydroxide solution is added in such an amount and at such a rate that the reaction of phthalimide with formaldehyde takes place in the pH range of 5 to 6 (abstract).

Klipper exemplifies a bead polymer A made of macroporous polystyrene crosslinked with 5% by weight of divinylbenzene (col. 4, lines 65-67).

Both references are analogous art because they are from the same field of endeavor concerning new process for preparing synthetic resins having ion exchanger properties.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate aminomethylated crosslinked polystyrene as taught by Klipper in Karlou-Eyrisch's process for preparing crosslinked bead polymers because anion exchangers based on crosslinked, water-insoluble organic polymers containing aromatic nuclei and having an improved total capacity and in particular improved mechanical and osmotic stability are obtained and, in addition, the time for the preparation of the anion exchangers is substantially reduced, that is the

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space-time yields of the preparative processes can be substantially increased (US'608, col. 1, lines 43-48), and thus to arrive at the subject matter of instant claims 1-3.

7. Claims 1-17 are rejected under 35 U.S.C. 102(b) as being unpatentable over Hosoda et al. (JP 09-225298) in view of Klipper et al. (U. S. Patent 4,952,608).

With regard to the limitations of claims 1-3, 5-12 and 17, Hosoda discloses a **cation exchange resin** and/or chelate resin comprising iron oxide and a method of removing **arsenic** from the solutions with the help of the above-mentioned resin (abstract).

Hosoda discloses alkali treatment of cation exchange resin and the chelating resin using sodium hydroxide and potassium hydroxide as desirable compounds for adjusting **pH to 4-10** and less than 13, which is within the claimed range (page 3, [0016], [0018], [0020]).

Hosoda discloses that styrene-divinylbenzene copolymer can be used as cation exchange resin (page 2, [0011]).

Hosoda does not disclose that aminomethylated crosslinked polystyrene can be used for producing an iron/oxide/iron oxyhydroxide ion exchanger.

Klipper discloses a process for preparing **anion exchangers** based on **crosslinked, water-insoluble organic polymers** containing aromatic nuclei, in which, in the first step, N-hydroxymethylphthalimide is produced by reaction of phthalimide with aqueous formaldehyde solution in swelling agents in the presence of bases; if desired, this N-hydroxymethylphthalimide is converted in a 2nd step to the bis(phthalimidomethyl)ether or an ester of N-hydroxymethylphthalimide; said polymers

are **aminomethylated** with N-hydroxy-methylphthalimide, bis(phthalimidomethyl) ether or an ester of N-hydroxymethylphthalimide in the presence of Friedel-Craft catalysts and swelling agents and the **aminomethylated polymers** are finally saponified to form the aminomethylated polymers, wherein, in the first reaction step, the base used for producing N-hydroxymethylphthalimide is sodium hydroxide solution and this sodium hydroxide solution is added in such an amount and at such a rate that the reaction of phthalimide with formaldehyde takes place in the pH range of 5 to 6 (abstract).

Klipper exemplifies a bead polymer A made of macroporous polystyrene crosslinked with 5% by weight of divinylbenzene (col. 4, lines 65-67).

Both references are analogous art because they are from the same field of endeavor concerning new process for preparing synthetic resins having ion exchanger properties.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate aminomethylated crosslinked polystyrene as taught by Klipper in Hosoda's process for preparing crosslinked bead polymers because anion exchangers based on crosslinked, water-insoluble organic polymers containing aromatic nuclei and having an improved total capacity and in particular improved mechanical and osmotic stability are obtained and, in addition, the time for the preparation of the anion exchangers is substantially reduced, that is the space-time yields of the preparative processes can be substantially increased (US'608, col. 1, lines 43-48), and thus to arrive at the subject matter of instant claims 1-3, 5-12 and 17.

With regard to the limitations of claims 4 and 13-16, Hosoda discloses glass column containing apparatus, which include cation exchange resin and/or chelate resin with 20-48 meshes of grain size for absorbing of arsenic (page 3, [0022], page 5, [0031]). It was clearly shown, that it is not necessary to use a lot of flocculants like the conventional coagulating sedimentation, and arsenic can be collected effectively (page 6, [0035]).

Hosoda does not disclose that the apparatus comprises iron/oxide/iron oxyhydroxide-containing aminomethylated polystyrene ion exchanger.

As it was shown above, Klipper exemplifies a bead polymer A made of macroporous polystyrene crosslinked with 5% by weight of divinylbenzene (col. 4, lines 65-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate iron/oxide/iron oxyhydroxide-containing aminomethylated polystyrene ion exchanger aminomethylated polystyrene as taught by Klipper in Hosoda's apparatus with reasonable expectation of success because such apparatus comprising anion exchangers based on crosslinked, water-insoluble organic polymers would have improved properties as it was shown above (US'608, col. 1, lines 43-48), and thus to arrive at the subject matter of instant claims 4 and 13-16.

8. It is worth to mention that Examiner has cited particular columns and line numbers or figures in the references as applied to the claims for the convenience of the applicant. Although the specified citations are representative of the teaching in the art and are applied to the specific limitations within the individual claim, other passages and



figures may apply as well. It is respectfully requested from the applicant, in preparing the responses, **to fully consider the references in entirety as potentially teaching all or part of the claimed invention**, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Bernshteyn  
Patent Examiner  
Art Unit 1713

MB  
03/09/2007



DAVID W. WU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700